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ABSTRACT

Agitation is a significant problem for nursing home residents, their families, and their caretakers. Agitation is defined as inappropriate verbal, vocal, or motor activity which is not explained by needs or confusion per se. It includes behaviors such as aimless wandering, pacing, cursing, screaming, biting, and fighting. The inappropriate nature of agitated behavior, evidenced by aggressiveness, excessive repetition, or lack of adherence to social standards, is judged from the standpoint of an observer. Although the literature describes agitation as related to dementia and cognitive deterioration in the elderly, this relationship has not been studied. A study was conducted to empirically test the relationship between level of cognitive functioning and both level and nature of agitation in nursing home residents (N=165). Residents were assessed via nurses' rating instruments for cognitive functioning and agitation. The results indicated that agitation was more prevalent among cognitively impaired than among cognitively intact residents, with the highest levels of agitation being exhibited by those with moderate levels of cognitive impairment. However, agitation was also quite prevalent among cognitively intact residents. Manifestations of agitation appeared to differ between cognitively intact and cognitively impaired residents; the former used behaviors which resembled coping mechanisms, whereas the latter manifested a wide range of inappropriate behaviors. These findings provide a preliminary picture of the relationship between agitation and cognitive functioning. (Author/NB)

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The Relationship Between Agitated Behavior and Cognitive Functioning in Nursing Home Residents: Preliminary Results *

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Abstract

Agitation is a significant problem for nursing home residents, their families, and their caretakers. Although previous literature describes agitation as related to dementia and cognitive deterioration in the elderly, this relationship has not been studied. This study empirically tests the relationship between level of cognitive functioning and both level and nature of agitation in nursing home residents. One hundred and sixty-five nursing home residents were assessed via nurses' rating intruments for cognitive functioning and agitation. Results indicate that agitation is more prevalent among cognitively impaired than among cognitively intact residents, with the highest levels of agitation being exhibited by those with moderate levels of cognitive impairment. However, agitation is also quite prevalent among cognitively intact residents. Manifestations of agitation differ between cognitively intact and cognitively impaired residents: the former utilize behaviors which resemble coping mechanisms, whereas the latter manifest a wide range of inappropriate behaviors. These results provide a preliminary picture of the relationship between agitation and cognitive functioning.

Agitation in the elderly is a major problem for the elderly themselves, their families, and their caretakers. Agitation impairs the quality of life for elderly people in the community, increases the likelihood of their entering a nursing care facility, and affects their specific demands and needs within the facility.

Agitation is defined as inappropriate verbal, vocal, or motor activity which is not explained by needs or confusion per se. It includes behaviors such as aimless wandering, pacing, cursing, screaming, biting, and fighting. Agitated behavior is always inappropriate; it can be manifested in three categories of inappropriateness: (1) it may be abusive or aggressive towards self or others; (2) it may be appropriate behavior performed with inappropriate frequency, such as constantly asking questions; and (3) it may be inappropriate according to social standards for the specific situation, such as putting on too many layers of clothing. Agitation is not a diagnostic term, but rather a group of symptoms which may be reflective of mental disorder, medical illness, medication effect, sensory/communication difficulties, or lifelong personality patterns. As a first step in revealing underlying syndromes which may cause agitation, this study investigates its relationship to cognitive functioning.

The inappropriate nature of agitated behavior, evidenced by aggressiveness, excessive repetition, or lack of adherence to social standards, is judged from the standpoint of an observer, rather than from that of the elderly person. Thus, while the older person may repeat his/her message because he is not receiving the appropriate internal or external response, or because his repertoire contains no other expressions, the expression is still considered inappropriate from the point of view of accepted social norms or, more specifically, from that of the nursing home environment.

A comprehensive discussion of the concept of agitation in the elderly and its definition was reported elsewhere (Cohen-Mansfield & Billig, in press). To date, most of the literature on agitation has been anecdotal, rather than quantitative. The existing literature suggests that deficits in cognitive functioning and cerebral impairment may predispose individuals to becoming agitated (de Ajuriaguerra, Rego, & Tissot, 1963; Chesrow, Kaplitz, Sabatini, Vetra, & Marquardt, 1965; Fisher, et al. 1983; Gerz, 1964; Granacher, 1982; Zarit & Zarit, 1982; Zimmer, Watson, & Treat, 1984.) However, the nature of the relationship between agitated behaviors and cognitive decline has not been investigated. Such an inquiry is the purpose of the current study. Specifically, this research explores the following possible linkages between agitation and cognitive decline in nursing home residents, focusing on:

a) the relationship between the level of agitation and the level of cognitive functioning, and

b) the comparison of the specific manifestations of agitation in cognitively impaired versus cognitively intact nursing home residents.

Two alternative hypotheses may be postulated for the first relationship, (a) above: 1) The rates and levels of agitation increase as the level of cognitive functioning declines, or 2) there may be a curvilinear relation between agitation and cognitive functioning. This latter hypothesis suggests that the patient tends to become increasingly agitated as dementia progresses, until it reaches a certain high level, when agitation diminishes, as awareness and abilities to behave diminish.

In comparing the manifestations of agitation in cognitively impaired and cognitively intact residents (b above), it is hypothesized that some behaviors, especially those that are repetitive or inappropriate to social standards, will occur more frequently in cognitively impaired residents while no differences between groups are expected in behaviors that demand attention.

Method

Subjects

The subjects were 165 nursing home residents: Thirty-three (20%) were males and 132 (80%) were females with a mean age of 85.2. This sample includes most (80%) residents on six randomly selected units of a 550-bed non-proprietary skilled nursing home in a suburban metropolitan area. (Reasons for exclusion were: consent refusal, ages below 70 or over 99, comatose state, short-term admission, recent admission, and hospitalization.) The subjects have varying degrees of physical disabilities and cognitive impairment.

Instruments and Measures

Agitation. The frequency with which patients manifested agitated behaviors was rated using a seven-point rating scale with 1=never, and 7=several times an hour. The agitated behaviors rated were: 1) pacing and aimless wandering; 2) inappropriate dressing or disrobing; 3) spitting; 4) cursing or verbal aggression; 5) constant unwarranted request for attention or help; 6) repetitive questions or sentences; 7) hitting; 8) kicking; 9) grabbing; 10) pushing; 11) scratching; 12) intentional falling; 13) eating or drinking inappropriate substances; 14) handling things inappropriately; 15) tearing things or destroying property; 16) performing repetitious mannerisms; 17) making verbal sexual advances; 18) making physical sexual advances; 19) throwing things; 20) hiding; 21) hoarding things; 22) making strange noises; 23) screaming; 24) biting; 25) trying to get to a different place (e.g., into elevator); 26) complaining; 27) being negative; 28) hurting self or others with cigarettes, hot water, or by some other procedure; and 29) general restlessness.

Two measures are used for agitation: 1) the frequency with which each individual manifested each agitated behavior on the seven-point rating scale; and 2) number of agitated behaviors manifested by each individual at least once a week.

For the examination of the subgroups of agitated vs. non-agitated individuals, the criterion of manifesting at least two agitated behaviors at least once a week was established for defining agitated individuals. This criterion is arbitrary, and future analyses may examine other cutpoints.

Cognitive functioning was assessed by using a modified version of the Brief Cognitive Rating Scale (Reisberg, Schneck, Ferris, Schwartz, & deLeon, 1983). The modifications included: 1) examples that are taken from activities which occur at the nursing home, and 2) the deletion of the last axis, "functioning and self care," which is considered an assessment of ADL.

The four subscales of cognitive functioning: concentration, recent memory, past memory, and orientation, use a seven-point rating system with "1" indicating normal functioning and "7" indicating total deterioration. The subscales were found to be highly intercorrelated, with all correlations between .85 and .92 for sample sizes between 152 and 164. It was therefore concluded that the average of the subscale could be used as an adequate global measure for the four subscales.

High vs. low levels of cognitive functioning. For the comparison of individuals with high vs. low levels of cognitive functioning, the average subscale score of '3' was used as the dividing line. Scores of 1-3 reflect the range between no cognitive deficit to minor objective deficits; scores above 3 reflect the range between a definite objective cognitive decline and total cognitive deterioration. This division is, by definition, arbitrary. Other possible groupings may be tried in the future, but were not experimented with in the current analyses.

Procedure

Subjects were rated by the unit's daytime charge nurse. A research assistant was present during the rating procedure in order to explain and clarify the assessment instrument. To obtain a consistent picture of the

residents' behaviors, ratings for each unit were completed during a specified two-week period.

Results

A. The relationship between level of agitation and level of cognitive functioning. Several analyses were performed to examine this relationship; these will be discussed as they pertain to each of the following research questions.

1) Do cognitively impaired residents manifest more agitated behaviors than cognitively intact residents?

Cognitively impaired residents manifested, on the average, 1.6 more agitated behaviors at least once a week than cognitively intact residents, a highly significant difference ($t(133)=3.3$, $p<.001$).

2) Do cognitively impaired residents manifest agitated behaviors at a higher average frequency than cognitively intact residents?

The average frequency of agitated behavior was higher in the cognitively impaired group than in the cognitively intact group, as evidenced in a multivariate analysis of variance with all agitated behaviors (which had variability) as dependent variables and high vs. low cognitive functioning as the factor investigated. (Table 1)

Insert Table 1 about here

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3) Is agitation restricted to individuals with low levels of cognitive functioning?

As demonstrated in Figure 1, a sizable (54.3%) proportion of the

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Insert Figure 1 about here

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cognitively intact residents manifested at least two agitated behaviors at least once a week. In other words, although agitation is more prevalent among the cognitively impaired, it is a significant problem among cognitively intact residents as well.

4) What is the curve that best describes the relationship between levels of cognitive functioning and levels of agitation?

The Pearson correlation between cognitive functioning and number of agitated behaviors manifested at least once a week is .159 for n=165. Although this correlation is significant at the .02 level, it shows a poor fit for a linear relationship between these variables.

The relationship between the average number of agitated behaviors and cognitive functioning is plotted in Figure 2. (Means of number of agitated behaviors were calculated for intervals of .5 of cognitive functioning.) The

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Insert Figure 2 about here

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curve is not quite clear; the number of agitated behaviors is low for residents with high levels of cognitive functioning; the number of agitated behaviors is high for most values in the middle ranges of cognitive functioning; the average number of agitated behaviors is lower, though still quite high, for the most cognitively impaired residents. Generally, this curve looks curvilinear, but the number of agitated behaviors does not fully decline when cognitive functioning is most deteriorated. Some caution must be taken in using the curve, since most of the subjects fall in the extremes of cognitive functioning; only a quarter of the subject population falls between the ratings of 1.5 and 5. Additional data is currently being collected to further analyze this issue.

B. The comparison of specific manifestations of agitation among cognitively impaired and cognitively intact nursing home residents. Agitated cognitively impaired residents were compared to agitated cognitively intact residents for the frequency with which they manifested each of the agitated behaviors via t-tests. As shown in Table 2, most behaviors were manifested

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Insert Table 2 about here

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more frequently by the cognitively impaired residents; however, complaining and hiding things were significantly more frequent behaviors among the cognitively intact individuals; negativism and hoarding things were also more frequent in this group of residents, though not significantly so. The other frequent behavior among cognitively intact individuals was the unwarranted requests for attention.

Discussion

This study confirms previous observations that agitation in the elderly is related to cognitive decline. However, this relationship is not a simple one. Nursing home residents with low levels of cognitive functioning are likely to manifest more agitated behaviors than cognitively intact residents; furthermore, on the average, residents with low levels of cognitive functioning manifest agitated behaviors at a greater frequency than residents who are functioning at higher levels. These findings are compatible with the first hypothesis of this study, yet two other findings modify their interpretation: a) there is a sizable population of agitated individuals among the cognitively intact population, and b) the relationship between levels of agitation and levels of cognitive functioning does not seem to take a linear form. These preliminary results suggest that the highest levels of agitation are manifested (on the average) in the subgroup with moderate

deficits in cognitive functioning; the cognitively intact subgroup manifested the lowest levels of agitation; whereas the most cognitively impaired residents manifested high levels of agitation though not as high as those of individuals in the middle range of cognitive decline. (The relationship between dementia and agitation may indeed be found to be curvilinear if both measures of cognitive functioning and those of activities of daily living are taken into account, since within the cognitively deteriorated group there is still a wide range of activity level.)

The second research question in this study involved the comparison of manifestations of agitation between the agitated cognitively impaired residents and the agitated cognitively intact residents. The findings support the hypothesis that agitation is indeed manifested in different ways among the cognitively impaired and the cognitively intact. Whereas the cognitively impaired agitated are likely to pace, dress or disrobe inappropriately, engage in aggressive behaviors, repeat sentences excessively, etc., the cognitively intact agitated residents' behaviors were generally confined to: complaining, hoarding things, hiding things, negativism, and request for attention. Thus, it appears that behaviors exhibited by cognitively intact residents might actually be coping mechanisms through which residents are trying to protect themselves and their belongings against real or imaginary aspects of their environment. Specifically, their complaining, negativism, and excessive requests for attention might represent efforts to change or not accept the environmental structure, while hiding and hoarding things are efforts to protect one's belongings or to protect one's future from lack of some material possessions. In contrast, the manifestations of agitation in cognitively impaired residents include a wide range of inappropriate behaviors, the functions of which are far more perplexing.

The results of the analyses above were determined by the specific measures utilized. Several other approaches to the definition of these measures are possible. The levels of cognitive functioning can be studied in three groupings of: cognitively intact (ratings 1-2 on the BCRS); moderate decline (ratings 3-5); and cognitively impaired (ratings of 6-7); rather than the two groups utilized above. Second, a different definition of agitation can be used. Whereas, this study employed two measures of agitation (the number of agitated behaviors manifested by each individual at least once a week, and the frequency by which each individual manifested each agitated behavior) an alternative approach, based on findings in a previous report (Cohen-Mansfield, & Kerin, 1986), can be utilized. In that preliminary work, agitation emerged in two general syndromes (via a factor analysis): an aggressive negative group of behaviors, and a neutral nonagressive group of behaviors. The alternative measures could be based on the factor structure of agitation; thereby analysis can be reduced to a few scores per resident, corresponding to the syndromes found. Finally, an alternative definition of agitated individuals can be employed. Whereas in this paper, residents were considered agitated if they manifested at least two agitated behaviors at least once a week, an alternative definition based upon the syndromes of agitation could include those individuals who manifest either syndrome at a given frequency or higher.

Summary

This paper describes the relationship between agitation and cognitive functioning. While confirming previous impressions that such a relationship is indeed a strong one, the results presented illuminate the complexity of this relationship. Even though agitation is more prevalent among cognitively impaired rather than cognitively intact residents, the highest levels of agitation are manifested by those with moderate levels of cognitive

deterioration. Moreover, agitation is also quite prevalent among cognitively intact residents. Furthermore, manifestations of agitation differ between cognitively intact and cognitively impaired residents: the former utilize behaviors which resemble coping mechanisms, while the latter manifest a wide range of inappropriate behaviors. Results from this study present a preliminary picture of the relationship between agitation and cognitive functioning. Further data is currently being collected, and additional measures will be used in future analyses to validate and explain this complex phenomenon.

References

de Ajuriaguerra, J., Rego, A., & Tissot, R. (1963). Activities motrices stereotypees dans les demences du grand age. Annales Medico-Psychologique, 121, 641-664.

Chesrow, E. J., Kaplitz, S. E., Sabatini, R., Vetra, H., & Marquardt, G. H. (1965). A new psychotherapeutic agent effective in the management of anxiety, depression, and behavioral reactions. Journal of the American Geriatrics Society, 13(5), 449-454.

Cohen-Mansfield, J., & Billig, N. Agitated behaviors in the elderly: I. A conceptual review. Journal of the American Geriatrics Society, 34(10), 711-721.

Cohen-Mansfield, J., & Kerin, P. (1986). Agitation in nursing-home elderly: A quantitative development of the concept. Paper presented at the American Psychological Association Convention, 1986.

Fisher, R., et al. (1983). An open dose finding study of melperone in treatment of agitation and irritability associated with dementia. Canadian Journal of Psychiatry, 28(3), 193-196.

Gerz, H. O. (1964). A preliminary report on the management of geriatric patients with oxazepam. American Journal of Psychiatry, 120, 1110-1111.

Granacher, R. P., Jr. (1982). Agitation in the elderly: An often-treatable manifestation of acute brain syndrome. Postgraduate Medicine, 72(6), 83-95.

Reisberg, B., Schneck, M. K., Ferris, S. H., Schwartz, G. E., & deLeon, M. J. (1983). The brief cognitive rating scale (BCRS): Findings in primary degenerative dementia (PDD). Psychopharmcology Bulletin, 19(1), 47-50.

Zarit, S. H., & Zarit, J. M. (1982). Families under stress: Interventions for caregivers of senile dementia patients. Psychotherapy: Theory, Research and Practice, 19(4), 459-471.

Zimmer, J. G., Watson, N., & Treat, A. (1984). Behavioral problems among patients in skilled nursing facilities. American Journal of Public Health, 74(10), 1118-1120.

Table 1

The Comparison of Average Frequencies of Agitated Behaviors

Between Residents with High vs. Low Levels of Cognitive Functioning

Via a Multivariate Analysis of Variance

Behavior	High level of cognitive functioning Mean (N=46)	Low level of cognitive functioning Mean (N=94)	F(1.138) for cognitive functioning	Significance
Pacing	1.65	2.98	10.96	.001**
Robing Inappropriately	1.13	1.68	6.34	.013*
Cursing	1.46	2.11	6.19	.014*
Unwarranted Requests for Attention	1.91	2.79	5.89	.017*
Repetitive Sentences	1.59	2.75	10.44	.002**
Grabbing	1.39	1.57	.97	.327
Making Strange Noises	1.07	1.85	9.38	.003**
Screaming	1.07	1.61	6.67	.011*
Scratching	1.04	1.30	3.65	
Falling	1.02	1.07	.55	.459
Complaining	2.76	2.26	2.42	.122
Negativism	2.15	2.34	.34	.562
Handling Things Inappropriately	1.04	1.38	4.16	.043*
Hiding Things	1.70	1.35	2.40	.124
Hoarding Things	1.50	1.59	.12	.727
Tearing or Destroying Property	1.02	1.07	1.25	.265
Repetitious Mannerisms	1.33	2.02	4.27	.041*
Restlessness	1.46	2.77	12.49	.001**

* p<.05
** p<.01

Table 2

The Comparisons of Manifestations of Agitation Among Agitated Residents+ with High vs. Low Levels of Cognitive Functioning via T-Tests.

Behaviors manifested more frequently by cognitively impaired agitated individuals

Behavior	High level of cognitive functioning Mean (N=25)	Low level of cognitive functioning Mean (73<N<82)	t-value	2-Tail prob.
Pacing	2.0	3.4	2.83	.007**
Robing Inappropriately	1.2	1.91	2.49	.015*
Spitting	1.0	2.1	++	
Cursing	1.8	2.4	2.00	.050
Unwarranted Requests for Attention	2.6	3.4	1.70	.094
Repetitive Sentences	1.8	3.2	3.35	.001**
Hitting	1.0	1.6	++	
Grabbing	1.6	1.8	.57	.571
Pushing	1.1	1.8	4.24	.000**
Throwing	1.0	1.1	++	
Making Strange Noises	1.1	1.9	3.48	.001**
Screaming	1.1	2.1	4.29	.000**
Biting	1.0	1.1	++	
Scratching	1.1	1.4	2.04	.044*
Trying to Go to Inappropriate Places	1.0	1.6	++	
Falling	1.0	1.1	.66	.508
Handling Things Inappropriately	1.1	1.5	2.43	.017*
Tearing or Destroying Property	1.0	1.1	1.31	.192
Repetitious Mannerisms	1.4	2.4	2.79	.258
Verbal Sex	1.0	1.2	++	
Restlessness	1.8	3.4	3.72	.000**

Behaviors manifested more frequently by cognitively intact agitated individuals

Behaviors	High level of cognitive functioning Mean (N=25)	Low level of cognitive functioning Mean (81<N<82)	t-value	2-Tail prob.
Complaining	3.5	2.6	2.52	.014*
Negativism	2.9	2.7	.60	.549
Hiding Things	2.3	1.5	2.28	.029*
Hoarding Things	1.9	1.6	.89	.379

++ Only behaviors in which there was variability were analyzed.
* P<.05
** P<.01

Figure 1

The Frequency of Agitated Behaviors Manifested at Least Once a Week Among Cognitively Intact Residents

	PERCENT	COUNT	NUMBER OF AGITATED BEHAVIORS
	19.6	9	0.0
	26.1	12	1.00
	6.5	3	2.00
	19.6	9	3.00
	13.0	6	4.00
	8.7	4	5.00
	2.2	1	6.00
	2.2	1	7.00
	0	0	8.00
	0	0	9.00
	0	0	10.00
	2.2	1	11.00
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TOTALS	100.0	46	

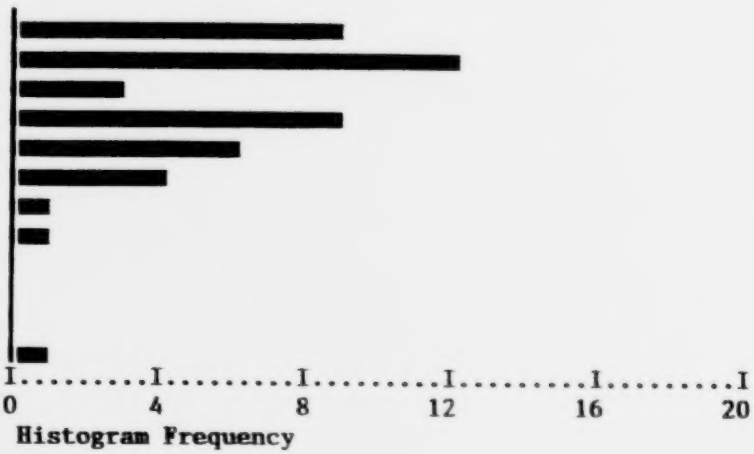

Figure 2

Number of Agitated Behaviors by Cognitive Functioning